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Community-based Agriculture and the Implications for Central Texas

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Community-based Agriculture and the Implications for Central Texas

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Abstract

Community-based Agriculture and the Implications for Central Texas

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Due to health and climate change concerns, there is growing interest in a shift away from large-scale agricultural production towards a more localized, organic methodology. These practices help to preserve local ecosystems and require less energy than conventional farming. With this trend, a new form of community development is emerging. Developments that incorporate agriculture are a form of conservation development and have been in existence in their latest form in the United States for the past ten years. Most of the examples are located in the northern, eastern and western United States, including Vermont, Virginia, Illinois, Utah and Georgia. Why has this type of development not yet appeared in Texas? The purpose of this research is to identify the motivations behind creating these developments and to describe how they function, to identify the challenges in the development review process and how they were negotiated, to present a set of issues and lessons learned from the case studies about what matters to the development of a successful case and determine how this applies to potential Texas development. Is this a more sustainable model for development, as opposed to the traditional method for greenfield development? The research is aimed

ultimately at exploring this newer type of development, determining whether it is more sustainable than traditional greenfield development and to present a set of issues and lessons drawn from the cases about what matters to the development of a successful case.

Table of Contents

List of Tables	ix
List of Figures	x
Introduction	1
Research Questions and Approach	4
Background	7
Research Context and Methods	11
Research Case Study Analysis	15
Prairie Crossing	15
Troy Gardens	21
Southlands	25
Comparative Analysis	31
Discord leads to the need for a different kind of development..	31
Inexperience leads to innovation.	32
Community and municipal support is critical.	32
Profitability is unpredictable.	33
Accessibility is critical to the sustainability of the development.	34
Lessons Learned	36
Willingness and patience to bring new concepts to the table is key.	37
Hire those who are experts in the agricultural or local food aspect to help in planning	37
The size of the farm matters: smaller is more efficient.	39
The farm itself should be protected.	39
Develop based on what is needed and not necessarily the housing trend.	40
Look for allies in unconventional partners.	41

Conclusion	42
Appendices	46
Appendix A	47
Prairie Crossing Site Plan	47
Appendix B	48
Troy Gardens Site Plan	48
Appendix C	49
Southlands Site Plan	49
Appendix D	50
Interview Questions Grouped By Type	50
Developers	50
Farmers	51
City Officials.....	52
Interview Questions for Southlands Case Study	53
Interview Questions for Those Potentially Involved in Texas Community-based Agriculture: City.....	55
Interview Questions for Those Potentially Involved in Texas Community-based Agriculture: Local Food Advocates ...	56
References	58
Vita	61

List of Tables

Table 1: Research questions.....	6
Table 2: Interviewees by category and development.....	14
Table 3: Prairie Crossing’s Ten Guiding Principles. <i>Source:</i> (Ranney, Kirley and Sands, Building Communities with Farms 2010).....	18
Table 4: Century Group’s Proposal for Southlands. <i>Source:</i> (Century Group 2011).	27

List of Figures

- Figure 1: World War I era US poster by James Montgomery Flagg, 1918,
lithograph, color; 56 x 36 cm. *Source:*
http://www.archives.gov/digital_classroom/lessons/sow_the_seeds/sow_the_seeds.html..... 8
- Figure 2: 5 Mile Farms in Austin, Texas. *Source: Author*..... 44
- Figure 3: Site Plan of Prairie Crossing. *Source:*
<http://www.prairiecrossing.com/pc/site/site-plan.html>..... 47
- Figure 4: Site Plan of Troy Gardens. *Source:*
http://troygardens.net/documents/maps_assets/TG-PUD-site-map-nov-2005.pdf 48
- Figure 5: Site Plan of Southlands. *Source: Agricultural Urbanism DRAFT, Duany
Plater-Zyberk & Company, LLC*..... 49

Introduction

Agriculture has and always will be intertwined with the human experience. Today, due to health and climate change concerns, there is growing interest in a shift away from large-scale agricultural production towards a more localized, organic methodology. These practices help to preserve local ecosystems and require less energy than conventional farming (Gomiero, Paoletti and Pimentel 2008).

With this trend, a new form of community development is emerging. Developments that incorporate agriculture are a form of conservation development and have been in existence in their latest form in the United States for the past ten years. Most of the examples are located in the northern, eastern and western United States, including Vermont, Virginia, Illinois, Utah and Georgia. A conservation development is:

A controlled-growth land use development that adopts the principle for allowing limited sustainable development while protecting the area's natural environmental features in perpetuity, including preserving open space landscape and vista, protecting farmland or natural habitats for wildlife, and maintaining the character of rural communities (Arendt 1996).

Why has this type of development not yet appeared in Texas or elsewhere in the south? My research purpose is to identify the motivations behind creating these developments and to describe how they function, to identify the challenges in the development review process and how they were negotiated, to present a set of issues and lessons learned from the case studies about what matters to the development of a successful case and determine how this applies to potential Texas development. Is this a more sustainable model for development, as opposed to the traditional method for greenfield development? I hope to show readers that there is a more sustainable model in

community development, one that incorporates an aspect of community agriculture. The ultimate measure of that success is to show that the developments are profitable and that the agricultural aspect of the community proved of some benefit to both those that live in the development and neighboring residents.

The research is aimed ultimately at exploring this newer type of development, determining on some basis whether it is more sustainable than traditional greenfield development and to present a set of issues and lessons drawn from the cases about what matters to the development of a successful case. A successful development, as defined in the context of this paper, means:

- The development has been permitted by the governing authority and built
- Residents have moved in, lived for a period of time and enjoyed living in the community
- The developer finds the profit from the community to be acceptable and the regards the community as a benchmark project
- And the farm component is an integral, positive addition to the community.

The community should also exhibit sustainability in some form. The definition for sustainability is very fluid, because of the myriad ways that this term is used. For the purposes of this research, sustainability is defined as a community development having three aspects:

1. Restoration or maintenance of the ecological functioning of the site to levels before humans had significant impact. An example would be reforestation of a site that was clear-cut for development or agriculture. To be sustainable, healthy ecological functioning of the development should also be maintained over time into perpetuity.

2. The second aspect of sustainability is the ability of the development to be economically self-sustaining. The farm component should be economically strong, whether it does or does not depend on funding from the community itself.
3. The third aspect of sustainability for community-based agricultural developments is equity. The developments should have a mix of income-types in order to be considered sustainable. If the community is not accessible to all, then it is not truly sustainable.

Planned community development practices range from unsustainable to regenerative. With the current global crisis of climate change, rapid population growth, and water shortages, I would like to contribute to research on best practices for housing people in the United States, particularly in the scope of community-based agriculture.

Often, greenfield developments are considered unsustainable because they are located far away from major trip generators, such as work, shopping, and schools. New infrastructure must be built farther out, which overtaxes the city's utilities. City infrastructure and service costs increase and resources are spread out over more area and population. Traditional development is usually done in this method as it is thought to be the most profitable for the developer. Best management practices are often thought of as too costly or without enough precedent to be worth making a large investment. But there are examples of development that have been done and proven to be successful that do not follow this model.

Research Questions and Approach

The research that has been one to date mainly focuses on smaller community gardens within well-established neighborhoods and urban areas. The research that this paper provides will fill in the gap between community gardens in urban environments and new communities that are established around the concept of farming.

The Urban Land Institute wrote a case study on Prairie Crossing, in which it is classified as a “sustainable planned community”. However, the research is not very in-depth due to the nature of the book’s purpose, which was to inform the development community of planned neighborhoods that have been developed in non-traditional manners.

More information is available on the growing urban agriculture movement, which encompasses community gardens in an urban environment, but my research examines a different aspect. Most of the studies to date explore city “infill agriculture” – smaller scale gardening done on vacant lots or brownfields. Community gardens are a component of agricultural developments, but different from community gardens, the farms in the agricultural developments are managed by outside sources and are of a larger scale. The research on urban agriculture is still beneficial because some urban issues relate to planned communities, such as pollution, housing and access to services. It is important to understand the planning issues related to urban agriculture, such as zoning, funding and community support.

I approach this research topic with certain assumptions. My working hypothesis is that agricultural residential developments are, on some level, more sustainable, despite the fact that most of the developments currently in existence were constructed on greenfields.

I make this assumption due to the percentage of conservation land that the communities typically preserve and because the local organic food production and distribution minimized the harmful impacts associated with larger scale commercial farming, such as the reduction of vehicle miles traveled and chemical herbicides and pesticides. I assume that a certain type of resident will live in these neighborhoods – people who are more environmentally aware and open to change. I also assume that this type of development will be difficult to introduce to Texas because of the political climate and the reception to change that exists in this state. I will investigate different ways in which the farmland in these communities is owned. Some involve co-ownership, while in other developments the farm is more of a public open space. There may be issues with land co-ownership in a strong property-rights state like Texas. This research will attempt to evaluate the reality of the claims of sustainability that these developments often make. My working hypotheses shaped the formation of my research questions. The research questions are listed in Table 1 below. Analysis of the research questions above helped to understand the questions that need to be asked about development in the Texas context.

It was important to understand the conditions that were in place at the beginning of the process for each development. Land use conditions, political climate and economics were some of the pre-existing conditions that facilitated the development process. The information about the challenges faced during the development implementation process was a crucial aspect to the research.

An understanding of how the farms function within the developments and their differences and similarities is also crucial. I am concerned with how the farms operate within a residential setting and if the proximity increases resident-farm/farmer interaction.

What is the motivation for doing these types of developments?	What kinds of people are motivated to live in this kind of development?
Interviews with developers and planning staff for each case study.	What were some of the primary challenges in each case study and how were they addressed?
Review documents that market the developer and local press coverage.	Interviews with developers and planning staff for each case study.
What are the operation and management strategies?	What are the implications for doing this and how might it happen in the Austin MSA region?
Interviews with the farm managers for each case study.	Interviews with City of Austin local food organizations and a local food proponent.

Table 1: Research questions.

Background

Although the body of literature is consistently growing on this topic, the research that has been done to date mainly focuses on smaller community gardens within well-established neighborhoods and urban areas. The research that this report provides will fill the gap of information between community gardens in urban environments and new communities that are established around the concept of farming.

Agriculture has been a staple land use in North America for centuries. Large-scale agricultural production has its own unique history. But the focus of this research stems more from the community garden movement.

Early colonial town planners placed agricultural areas within the city proper. As an example, Boston and other towns throughout New England had a “common” on which farm animals could graze. As cities industrialized, agricultural became more large-scale and moved to the outer areas of city where larger tracts of land were more readily available. Simultaneously, city dwellers had less need to buy their own food. Urban agriculture became more of hobby and source for charity.

In the early 19th century and even into the 20th century, community gardens have been promoted as a use for vacant parcels of land within cities and as “a strategy for coping with the economic challenges of war, depression, and inner-city decline” (Hodgson, Campbell and Bailkey 2011). During times of economic downturns, many cities like Detroit and Philadelphia instituted programs that made use of vacant lots for food production, in conjunction with cooking and food-processing programs, for relief for low-income families.

During the World War I and II the National War Garden Commission promoted Victory Gardens as a way for citizens to produce their own food when there was pressure

to reduce the public food supply. Fruit, vegetable and herb gardens were planted on both public and private properties in this effort. 20 million gardens were planted in backyards, front yards, public parks and rooftops by 1943. All of these gardens produced between 9 and 10 million tons of food that accounted for 41 percent of the vegetables for the year (Hodgson, Campbell and Bailkey 2011).



Figure 1: World War I era US poster by James Montgomery Flagg, 1918, lithograph, color; 56 x 36 cm. *Source:* http://www.archives.gov/digital_classroom/lessons/sow_the_seeds/sow_the_seeds.html.

At the same time, the practice of zoning has typically located agricultural uses in more rural areas. Animal and food processing has been viewed negatively affecting public health. In the 20th century, suburban growth has pushed agricultural uses even farther from the center of the city. The zoning code in many cities does not recognize agricultural land use within city limits. Large-scale farming and its use of pesticides and

fertilizers has made national and international distribution possible, and thus lessened the need for local production.

The cyclic movement of urban agriculture is now moving back towards cities. This practice has once again been steadily growing in recent years. Urban agriculture is said to play “an important role in:

- Enhancing urban food security, nutrition and health;
- Creating urban job opportunities and generation of income especially for urban poverty groups and provision of a social safety net for these groups;
- Contributing to increased recycling of nutrients (turning urban organic wastes into a resource);
- Facilitating social inclusion of disadvantaged groups and community development and;
- Urban greening and maintenance of green open spaces.” (Veenhuizen 2006).

These aspects of urban community gardens are intermingled closely with urban issues, but this research examines a different aspect of community gardens. Planned developments with agriculture deal with some of the same concerns as urban community gardens, but community-based agriculture in planned developments have some unique implications. Most of the studies to date explore city “infill agriculture” – smaller scale gardening done on vacant lots or brownfields. Community gardens are a component of agricultural-based developments. But some of the differences between urban community gardens and the farms in the agricultural-based developments are that the farms are typically managed by outside resources and not the residents themselves, and the farms are usually of a larger scale

Urban agriculture comes in many different scales and types. Noncommercial urban agriculture can be community gardens, private gardens, institutional gardens,

guerilla gardens or hobby honey and chicken keeping. Commercial urban agriculture consists of market, urban and periurban farms, and beekeeping. And finally, hybrid urban agriculture is “any combination of gardens and farms that produce food-producing or ornamental plants, bees, fish, poultry or small to medium-sized farm animals for personal consumption, education, donation and sale” (Hodgson, Campbell and Bailkey). Agricultural-based developments are usually a form of hybrid urban agriculture, with the farm functioning to produce a profit, but also serving to educate those who choose to participate in the farming activities and schools.

Recently, agriculture has experienced a rising trend as an amenity, similar to the way a golf course functions for a planned development. “They are a way for developers to distinguish themselves in a slowing housing market, catering to people’s increased interest in environmental sustainability and desire for locally grown food” (Munoz 2007). Agricultural-based developments like Prairie Crossing are often conservation developments, which means that the open spaces will always be preserved and the views to those preserved areas will demand a higher land value.

This report will fill the gap of literature between community gardens in urban environments and new communities that are established around the concept of farming. One of the more distinctive aspects of this research will be a study of neighborhoods with a larger-scale farm and the challenges associated with planning and permitting for such a development.

Research Context and Methods

The research was conducted in two parts. The first part investigated existing agriculturally centered developments. Two development case studies were explored, each of which is very distinctive. The dissimilarities between the two gave a broader perspective of farm and community functioning. Another reason for choosing the two divergent case studies is because one emerged from a grass-roots effort, while a developer and her team of consultants were the force behind the other development's establishment. I learned how and why the two significantly different processes produced the results that exist today. Within the case studies, I interviewed the developers, city planning officials and farm managers and gained an encompassing perspective of how the development was taken from idea to working model and determined the motivation behind why the farms were included within the development.

Prairie Crossing is the first case study and is located just north of Chicago, Illinois in a village called Grayslake. It was one of the first conservation developments in the United States and the first to incorporate food production. In Prairie Crossing, there are five working farms, each with a different purpose and function.

The second case study is called Troy Gardens in Madison, Wisconsin. It is very different from Prairie Crossing, in scale, development process and management. A neighborhood association was formed under threat of losing land that the area residents had been using for community gardens to a private developer. This association then worked with the developer to buy the land and develop a community farm with mixed-income housing.

These very different case studies brought to light concerns, issues and motivations that guided the questions that need to be asked to find out what needs to be in place for

agricultural planned development in Texas to be implemented, functional and profitable. These questions helped to understand the issues that each developer encountered during the development process and their motivations for creating a community such as these, the differences in the farmers' experiences from their past agricultural involvement and the community farms and the city officials' perceptions of agricultural-based development.

There are limitations to the chosen cases. They have both only been in existence for a relatively short time period. This arguably does not give enough empirical evidence of a fully functioning neighborhood and farm. Prairie Crossing is the first model of this type of development and therefore the oldest. Another limitation to my research is the fact that I am only using two case studies due to time and funding. Conceivably my research could be the starting point for someone to continue further.

The second part of the research explored how developments like the ones investigated in the case studies could function, if at all, in Texas. I interviewed those in the Austin area who would be involved with this kind of development, including a city food policy member and a local food advocate. My assumption in choosing to focus on the Austin region is because the city has a strong local food culture and the residents may be more receptive to this kind of development. The city is also currently experiencing developmental pressure due to rapid population growth and will make a unique setting for how this type of development may be integrated into the planning context.

Paralleling this part of the research, I will examine a new planned development that has recently been submitted to the local governing authority in Delta, British Columbia, called Southlands. Andres Duany of Duany Plater-Zyberk & Company conceptualized Southlands, which the developers are presently moving forward through the permitting stage. It embodies Duany's scheme of "Agricultural Urbanism", which is

an extension of New Urbanism with an agricultural component. The developers gave insight on current challenges faced during the planning of an agricultural development in today's context. The lessons learned from Southlands are pertinent to Texas developments, since it is still in the planning and permitting stages.

Interviews with members of three different groups (planners, developers and farm managers) for each case study were used to collect data. I conducted Skype interviews with the interviewees in Madison, Vancouver and Grayslake. For the Texas portion of the research, I conducted in-person interviews with a City of Austin food policy official and a local food proponent. See Table 2 below for a categorization of who was interviewed¹. It is hoped that the report presented here will be useful to developers, planning officials and persons in the local food movement by highlighting the challenges that other developers faced so that those same issues may be avoided or mitigated.

¹ See Appendix D for a full list of the interview questions.

Development Name	Developer	Farm Manager	City Planner
Prairie Crossing	Vicky Ranney, Co-developer	N/A	Kirk Smith, Village of Grayslake Zoning Officer
Troy Gardens	Greg Rosenberg, Former Executive Director of Madison Area Community Land Trust	Claire Strader, Troy Gardens Farm Manager	Heather Stouder, City of Madison City Planner
Southlands	Sean Hodgins, President of Century Group	N/A	N/A
Texas Interviewees	N/A	Randy Jewart, Owner of 5 Mile Farms	Katherine Nicely, City of Austin/Travis County Sustainable Food Policy Board

Table 2: Interviewees by category and development.

Research Case Study Analysis

The two case studies that are the focus of this research are Troy Gardens in Madison, Wisconsin, and Prairie Crossing in Grayslake, Illinois. These locations were chosen specifically because they are so different and were expected to give different perspectives on community-based agriculture. The Southlands case, located in Tsawwassen, British Columbia, was included in the study as a comparative case and not necessarily a third case study because it is a more recently planned case that is currently undergoing permitting. The benefit in a review of Southlands is to illuminate what some of the more current planning and permitting challenges may be, in relation to Texas development.

PRAIRIE CROSSING

Prairie Crossing has several unique features that predicated its inclusion in the research. It was one of the first conservation developments in the United States and also one of the first planned developments in America to incorporate food production (Ranney, Kirley and Sands, *Building Communities with Farms* 2010, 8). Located 40 miles north of Chicago, Illinois, in the Village of Grayslake, the development lies on 668 acres, 60 percent of which is designated as open land. The farm component is just a portion of the programming for the community – there are also horse pastures, a stable, a restored barn, mixed-use commercial uses, lakes and three schools. The community also has two commuter rail stations that link riders to Chicago and the airport, qualifying it as transit-oriented development² (Smith 2012).

² See Appendix A for a plan of the development.

The land that was eventually developed into Prairie Crossing had been under heavy contention in the 1970s and 1980s. Agricultural land was rapidly being developed into suburbia and a group of neighboring landowners formed to fight a developer's plans that intended to develop the land into "typical suburban sprawl" (Ranney, Co-Developer of Prairie Crossing 2012). From 1970 to 1990, the areas surrounding Chicago experienced incredible growth. The amount of urbanized land increased by 46% from 1970 to 1990, while households only increased by 22% (Wiewel and Schaffer).

The fight over the land lasted fifteen years and both the original developer and the neighborhood group served many lawsuits. In 1988, one of the cases, involving the Village of Grayslake and the developer, even made it all the way to the Supreme Court (Justia 1988). In 1987 Prairie Holdings Corporation, a group formed from some of the neighbors, bought the property. George and Vicky Ranney were asked to manage the development of Prairie Crossing.

George Ranney's family was from the area, back when it was still agricultural land. Since the property was at that point in time still considered farmland, they could not sell it to any of the local land-buying companies. The Ranneys wished to take the land back to its original condition and do a "green" development that would conserve land while still allowing people to live on it.

Prior to becoming Prairie Crossing, as it is known today, the property was once a prairie but became farmland in the 1840s. In the 1940s the land was used for large-scale production of corn and beans. The Ranneys chose to reserve several hundred acres in the property for an organic farm. The organic method was a "conscious decision" (Ranney) because they did not think anyone would want to live next to industrial agricultural land use, due to the use of large equipment and chemical fertilizers and pesticides. Industrial farming methods did not fit in with the Ranney's concept of a conservation development.

Several features of Prairie Crossing were new to the Village of Grayslake. The first was the common area arrangement, including a community farm, horse area and the village green. Many of the technical engineering concepts dealing with stormwater and reduced street right-of-ways were innovative but the Village was open to negotiation. The property had several conditions that facilitated approval from the Village of Grayslake. The first was that the Village was permitted as a Planned Unit Development (PUD), which allowed several different land uses to occupy the same property. This arrangement was developed with the local village and county officials and became a general outline for what was to be built. It allowed both the Village and the developer to be flexible.

Another condition that facilitated approval was the realization by local officials that traditional suburban sprawl was not economical for the government. Ms. Ranney stated that the local government had just undergone ten years of intense development of residential communities, which cost the government more money in having to run services like sewer, roads and water than it was taking in through property taxes. Prairie Crossing was to have fewer dwelling units per acre, at a higher property tax rate, which brought in more money for the Village.

The final condition that facilitated Prairie Crossing's approval was the fact that the Ranneys were known locally. Ms. Ranney's father was the lawyer for the group of neighborhoods that fought the original developer and Mr. Ranney had run locally for office. This is a theme that will reemerge in the Southlands case study.

A farmer was hired to manage the operation at the beginning of development, which was paid for out of the marketing budget. The farm as it exists today, Sandhill Organics, is now run by the Sheaffers, and was one of the first organic farming operations in the area. Presently, the family leases 40 acres of land and produces on over

20 acres (Ranney, Kirley and Sands, Building Communities with Farms 2010). Organic farming methods were very important to the developers for several reasons, the most important being the principles of the conservation development. But since the developers had never been farmers, the standards that the federal government had in place for organic farming made decisions regarding the farming practices easier.

1	Environmental protection and enhancement
2	A healthy lifestyle
3	A sense of place
4	A sense of community
5	Economic and racial diversity
6	Convenient and efficient transportation
7	Energy conservation
8	Lifelong learning and education
9	Aesthetic design and high-quality construction
10	Economic viability

Table 3: Prairie Crossing's Ten Guiding Principles. *Source:* (Ranney, Kirley and Sands, Building Communities with Farms 2010).

As one of the first developments of its kind, Prairie Crossing faced many challenges during the permitting process. First, although many of the ideas about conservation, energy efficient construction and stormwater management were not new, bringing these ideas together in concert was. Second, marketing the property proved difficult. The Ranneys advertised in one of the Chicago newspapers, which proved expensive. They then advertised on the local public radio and classic music stations with

advertisements written in-house. Certain elements of the development, such as the charter school, the green buildings and the farm, gained much national press, which equated to no-cost advertising. The farm also managed to become a marketing bonus. It was challenging to get people to Prairie Crossing, but the farm received much attention, especially during the warmer season months.

The energy efficiency aspect of Prairie Crossing was also challenging because they were building on a scale that had not been done previously. The developers found help from the United States Department of Energy's "Building America" program, which educated subcontractors on how to build green homes. Prairie Crossing was the first residential development to have all of the new residential units certified with the program.

Financing was of course necessary to support the development's construction. The developers found it difficult to acquire a loan from bankers because they were unfamiliar with the new development concepts that Prairie Crossing was proposing and did not think that it would profit as much as conventional developments. Once the construction loans were in place, they immediately began accruing interest and necessitated quick sales of the houses in order to repay the loan and make a profit.

The farm was supported financially by a different method. 100 acres of farm were given to the Liberty Prairie Foundation before final build-out of homes and before the residents took possession. Half of 1% of each home purchase goes towards the Liberty Prairie Foundation. The purpose of the Foundation is to "promote the integration of healthy ecosystems and the vibrant human communities they support throughout Lake County, Illinois" (Prairie Crossing 2012), including Prairie Crossing's farms.

The property also gains income from a neighboring landfill. An agreement is in place to give a tipping fee for each truck that dumps garbage at the landfill to the

Foundation. This was put in place to foster better relations between the community and the landfill. The landfill now uses Prairie Crossing as an example for communities who are incredulous about having a landfill nearby.

The main financing mechanism is the Business Development Center, or “incubator” farm. This farm is leased in large and small segments to carefully vetted farmers, who lease the a maximum of five acres of land for up to five years so they can learn and test their interest in farming. The farmers independently sell organic produce to farmers markets and Community Supported Agriculture (CSA).

The land ownership of the cooperatively owned parts of the development is handle through the Prairie Crossing Home Owner’s Association (HOA). They own all of the open space. But the Foundation owns the farms, which was done for a very specific reason. The Foundation is to remain in perpetuity, as are the farms. The developers were concerned that if the farm was put in the charge of the HOA, then over time, residents may not want to keep paying fees to keep the farm in tact. Because the farm is owned by the Foundation, it will remain an integral part of the community over time.

Prairie Crossing has sold all of the 359 homes and is currently selling 36 condominiums. According to Ms. Ranney, the farms are a great success and a popular amenity for both residents and neighboring communities. The Prairie Crossing model has been applied regionally to other developments under the Village’s purview, including the increase us of features such as aboveground stormwater management, decreased salt usage on the road during winter months, smaller lot sizes and use of native planting. The development is often touted as a premier example of a sustainable development because of its many ecologically sustainable features. The next section is a case study of Troy Gardens, which approached sustainability from a different vantage point.

TROY GARDENS

Troy Gardens is a 31-acre residential, farm and community gardens development located in the heart of Madison, Wisconsin. The undeveloped land near the Mendota Mental Health Center originally belonged to the State and was placed on the surplus land list in 1995. Under the threat of being redeveloped by the State into single-family residential, the neighboring residents, who had been using approximately five acres for community gardening and enjoying nature, joined together with several other non-profit groups, including the “Northside Planning Council (NPC), the Madison Area Community Land Trust (MACLT), the Urban Open Space Foundation (UOSF), the Community Action Coalition of South Central Wisconsin (CACSCW) and the Design Coalition to form the Troy Gardens Coalition” (Caton Campbell and Salus 2010).

A mixed-housing and open space plan was born from the joint venture, which showed considerably less dense residential development than if it was to be developed by a conventional private developer. In 1997, the State removed the property from the surplus land list and gave the Coalition a 16-year lease to “use the land as the Coalition saw fit” (Caton Campbell and Salus).

In 1998, the Coalition and the State of Wisconsin reached an agreement to extend the Coalition’s lease on the land to 50 years. The MACLT could acquire full title to the land and the conservation easement would be held by UOSF. In 2001, MACLT obtained community development block grant funds from the City of Madison to buy the entire tract from the State and permanently secured the property for Northside.

Sol Levin, the executive director of MACLT had once been the second director of the Madison Redevelopment Authority and saw Troy Gardens as a “redemptive project” (Rosenberg, Former Executive Director of Madison Area Community Land Trust 2012). Mr. Levin passed away four months into the development process and Greg Rosenberg

became the lead developer. MACLT obtained PUD approval in 2005. According to Greg Rosenberg, former executive director of MACLT,

The development idea itself was ambitious. Therefore, the plan had to be equally as ambitious.³ The developer wanted the plan to be as forward thinking as the site itself. This meant aggressively pursuing green building methods and energy efficiency programs, universal design principles⁴ and mixed income housing.

The City initially resisted the plan because the property was originally slated to become single family residential, which would have generated tax revenues. In 2005, the property underwent a zoning change to become a PUD. The conditions for approval requested by the city were for the owner to build new sidewalks, basic ordinance requirements such as stormwater and utilities, \$15,000 in park development fees, 36 bike stalls, sewer easements and a bus boarding pad in anticipation of increased ridership. The planning for the development took 15 years, but approval took three to four months. What made this especially arduous was the complicated system of approval from each different city department. For instance, if a change was made after a meeting with the planning department, then another round of meetings needed to occur between the other departments to review the changes (Rosenberg).

Many of Troy Garden's features were new to the City. Low impact stormwater management came naturally to the project since only five of 31 acres was to be developed into residential. The use of co-housing was new to the City, but it was so successful that the model has been replicated since. Co-housing is similar to the condominium concept, in that the homeowners possess the units, but they do not own the land beneath it. That land, in the case of Troy Gardens, is owned by the community land trust. If sold, only a

³ See Appendix B for the Troy Gardens site plan.

⁴ Designing for universal accessibility (Rosenberg, The Accidental Ecovillage 2010)

small increment of equity can be kept. This serves to lock in affordable housing. Another new feature, the farm, produced food for a CSA that was the first and only operation of its kind in Madison. 12-16 acres of the farm is used to produce for the CSA today.

The planning process that the neighborhood underwent for the concept design of Troy Gardens helped to facilitate public relations with the development. The approved plan did not really change from what the Northside Planning Council had worked through with the neighbors in the years prior to when MACLT began the development phase. The neighbors originally wanted the entirety of the 31 acres to be agricultural land, but realized that a small portion of housing would help fund the cost of building the rest of the site. The neighbors wanted owner-occupied co-housing. The CDBG dictated that a certain percentage of the housing had to be affordable; therefore 2/3 of the residential component is affordable to meet this condition. This was unlike most mixed-income developments of this time and because of this, the developers had to find a homebuilder that was willing to build what approximated to 30 custom homes. This was critical for the success of the residential component Troy Gardens.

The development process of Troy Gardens had four major challenges. The first was acquiring funding of the project through subsidies. The project earned \$750,000 of HUD Economic Development Initiative money and \$155,000 from City community development block grant funds. Though this money gave MACLT a good start, additional funding was needed in the form of a construction loan to build the residential units. By providing one-third of the houses as market-rate units, this provided a source of subsidy for the project. Troy Gardens received a subsidy by acquiring the state-owned land for \$10,000 per acre, well below the asking price.

The second overarching challenge was the large number of stakeholders that MACLT was held accountable to. The third was acquiring plan approval from the City, which was a very arduous process. As an example, the entire development had to be designed before MACLT could even submit the plan for approval.

The fourth was the developer's capacity to do the project. Greg Rosenberg, former executive director of MACLT, was the only staff member working on Troy Gardens for ten or more years. This significantly decelerated the approval process. But once staff was hired, about ten years into permitting process, MACLT was able to begin working more efficiently.

An LLC was established to organize the land ownership of the cooperatively owned part of the development. The 26-acre conservancy is leased by Community Groundworks, the organization that runs the farm, for \$1 per month. The developer looks upon this relationship favorably because they manage the land and run various on-site programs, including an intern program that trains 12-14 inexperienced growers every year. This lease is capped at 15 years, due to a state statute regarding leasing of agricultural land. There was also uncertainty about how the farm would fare, so the leases began at 5 years and continually roll over if there are no objections. A separate LLC owns the 5-acre housing. This land was leased to the housing association for a 98-year term lease at \$1,500 per month.

Troy Gardens has had lasting effects locally. The co-housing model in Troy Gardens has been successful and works well for irregularly shaped pieces of land. It also maximizes the use for family and affordable housing, of which the City hopes to see more (Stouder 2012). The CSA and community gardens are well-used by those throughout the city and residents and neighbors alike experience the education, internship, social aspects and food that the farm provides.

The PUD that Troy Gardens was developed under proved to be too rigid. Every small change had to go through a weeks-long process for approval. The City of Madison has recently done a re-write of city code for an urban agriculture zoning district, which is slated to be adopted in late 2012. Regulations to agricultural development within city limits are being removed and special attention is being paid to conflicting land uses. Heather Stouder, City of Madison City Planner, states, “in an urban area, you have to think about land use conflicts and what is directly adjacent to an agricultural site” (Stouder 2012). Staff at Community Groundworks, the organization managing the Troy Gardens farm, gave input to the city staff.

The first two case studies have shown agricultural-based communities on vastly different scales that were developed in a very different time period from today. The following case study of Southlands, a development in Canada that is currently undergoing the approval process, aims to show the challenges that a development of this type presently faces.

SOUTHLANDS

Southlands⁵ is an agricultural-based community development that is currently undergoing the permitting process. It is located near Vancouver, in the Corporation of British Columbia, in the town of Tsawwassen. 80% of the property’s 537 acres will be preserved “for agriculture, wildlife, community recreation and pathways” (Century Group 2012). 107 acres will be designated for building 950 townhomes, cottages and small family residences.

⁵ See Appendix C for the conceptual Southlands site plan.

Century Group, the developer of Southlands, specializes in building communities and their portfolio of projects includes hotels, senior living residences and rental properties (Century Group, LLC 2012). The Southlands property had been under contention regarding land use since the 1970s. The land was bought from out of bankruptcy and partially sold to the provincial government in order to recover some of the initial investment. The developer owned it for 17 years before moving forward with any plans. Century Group's President Sean Hodgins says that the "land wasn't doing anything for the community" (Hodgins 2012). Some farming existed – mostly potatoes, cattle corn and barley. In 2007, the developer came to the community with a broad framework plan that outlined the land uses to be 1/3 developed into residential units and 2/3 of the property to be devoted to agriculture and green space. Essentially, 300 acres would be dedicated to and owned by the municipality of 22,000 people, making this an "interesting opportunity for the community" (Hodgins 2012). Thus, the idea of "community-based agriculture" was developed for Southlands.

Duany Plater-Zyberk & Company designed the original concept plan in 2009. This firm was chosen because of their charrette skills and previous planning work. Early on in the planning process, 24 volunteers from the community gathered to envision the community, including the agricultural and housing component. The developer's prior work with the community was incorporated into the charrettes that were steered by Duany Plater-Zyberk.

Southlands gained inspiration from Prairie Crossing in Grayslake, Illinois and a food-based community in Burlington, Vermont. The food production aspect of these communities was a significant part of why they inspired Southlands, but the social aspect of having land available for people to grow food together was very important to the developer and the broader community. The area proposed for the development was to

have a “transparent transition between the built environment and agricultural land” (Hodgins 2012). Farmer’s markets and community gardens would evoke the larger agricultural theme of the surrounding property.

With a twist on New Urbanism, the plan featured a transect, or section, through the property showing the diversity of food and food production options that can be achieved in various residential densities. Food production is theoretically viable at all scales, from window box gardens to community gardens to large-scale agricultural production on the development’s outskirts. The plan states that

the critical difference...is proximity to urbanism which limits the repetition of a single transect zone. The location of the structures along the thoroughfare creates a sense of community and, the farther from urbanism these lots are, the more self-sufficient they are shown to become” (Duany Plater-Zyberk & Company, LLC 2009).

The premise of the community is to create a sustainable model of integrated residential and agricultural components. It is divided into four areas, including the publicly-owned community farm, the neighborhood center and market square, integrated neighborhoods and parks, trails and open space (Southlands Properties 2011). Currently, the land is used as farmland and open space, with the property owner’s residence, a historic house and a small organic farm sharing the property.

1	Transfer 80% of the lands to public ownership
2	Provide mix of housing choices
3	Farm the best soils sustainably and in an ecologically responsible way
4	Maximize public access and enjoyment
5	Maintain pastoral viewscales and character

Table 4: Century Group’s Proposal for Southlands. *Source:* (Century Group 2011).

The community farm is intended to evoke the land's agricultural past. Although the farm's management has yet to be fully planned, the area designated for the farm has the highest quality soils of the site. Local farmers and agricultural education professionals were consulted as the plan was under design. The existing surrounding agriculture is on a larger scale and more industrial than what is intended at Southlands. The developer wanted to break down the typical suburban separations between homes (fences, hedgerows) in order to allow for the "agriculture to spill into the community" (Hodgins 2012). Conceptually, a public trust or agency will dole out land on a leasehold basis at below-market rent. The housing component will not have entitlements to the agricultural land.

The neighborhood market and square will provide Southlands and the surrounding neighborhoods with commercial retail, including a café and food stores that will carry food from the farms. It is seen as a "link between the agricultural activities on the land and everyday life in Tsawwassen" (Century Group 2011). This area is envisioned to provide space for art galleries and other cultural activities.

The integrated neighborhoods are to provide a range of housing choices, including townhomes, cottages and smaller family homes. The developer saw a need in the area for elderly housing and those downsizing their homes. The original plan laid out 1,900 homes and the Century Group plan reduced that number to 950. This was the minimum number of homes that could make development of the property viable and pay for the agricultural upgrades on the farmland. At the time of this report, the homes were thought to be in the range of \$400,000-700,000.

The parks, trails and open space will provide the buffer between the new development and the existing neighborhoods, including Monterra and Boundary Bay. They are to maintain the existing views from the property and from the surrounding

properties. There will be protected wildlife areas, which will serve to enhance the local birds and other forms of wildlife.

The Southlands development process has taken many years. The local council was “very suspicious” because of the initial contention over the property. The development has earned some grudging respect though, because of the land that will be dedicated to the municipality when the plan is approved. The developers experienced a mix of “apathy and hostility” (Hodgins 2012) from the council because of the development and a lack of trust. On the other hand, the plan has received kudos from nearby surrounding communities. Politicians working with those communities have been supportive of the initiative.

There were several opportunities that helped leverage the project forward. First, the land previously bifurcated the community and the proposed design opens up this divide with pedestrian corridors, such as trails. Secondly, there is a need in the area for housing for the aging population and smaller housing in general. The median age was high relative to the region and the current housing stock is too big for “empty nesters” (Hodgins 2012). The region underwent a housing boom in the 1960s-80s and then immediately stopped, so there has not been much new residential building. The houses that were built during this time period were mostly large, single-family, auto-oriented housing. One of the goals of the Southlands development is to provide different forms of housing choices for a varying demographic.

According to Sean Hodgins, President of Century Group, the three biggest challenges faced with seeking approval for Southlands have been resistance to change, political leadership and the dedication of such a large amount of the property to agriculture. The surrounding community – both residents and politicians – held much suspicion over the proposal for change on the neighboring property. There seemed to be

an inherent distrust of developers. The fact that Hodgins was from the area helped the process. The political leadership did not foster an inviting environment and instead of acting as mediator, fostered bad will between the developer and the community (Hodgins 2012). The third challenge, the dedication of farmland, was difficult because the developer had to explain why the entire property just did not simply remain farmland. They had to explain and help the community understand that investment had to be recovered by keeping some of the property as residential units for sale. Not many people shared this vision and remained very suspicious.

Community residents, urban planners, the agricultural community and regional leaders proved to be key allies for the developers. Though not everyone agreed with the idea, and a few were actually hostile, those that did agree with the plan liked the idea of setting aside land for open space preservation and adding legislative controls on land that seemingly was not doing anything for the community. It helped that the local university⁶ had a strong connection to this process, since the agricultural education department was consulted throughout the planning process. If the plan is approved, the project will be successful because, “it will show how community can positively change through community-based agriculture” (Hodgins 2012). The space allocated for agriculture serves as community space and allows community to take root.

Despite the fact that the Southlands development is located in a different country and is currently undergoing the permitting process ten or more years after the first two case studies, many of the challenges remain the same. These will be examined more thoroughly in the following section.

⁶ Kwantlen Polytechnic University

COMPARATIVE ANALYSIS

Between the three case studies, there were a multitude of both similarities and differences that could be pulled from previous literature on the communities and interviews with the developers, farm managers and governing officials. The similarities and differences create a set of lessons learned from which those who are seeking to develop community-based agriculture in the Austin region may learn.

Discord leads to the need for a different kind of development.

To begin, all three developments were born from some level of contention over the land. In Prairie Crossing, Troy Gardens and Southlands, the property was originally to be developed into conventional single-family development. In the case of Prairie Crossing, the plan that arose out of this contention was in response to the threat of losing rapidly disappearing farmland, and the developer's nostalgia that accompanied agricultural land use. For Troy Gardens, the response arose from the threat of the neighbors losing their community gardens and open space. The goal for the developer of Troy Gardens was to give something back to the community in a way that provided universal accessibility. The intent for Southlands was to save the land from the continuing suburban sprawl and give the land back to the community. The similarity between all of the case studies was that the idea for the developments arose from some level of dispute over the land.

The conditions that facilitated design development were different between the case studies. For Prairie Crossing, what was occurring at the national level in the way of suburban development and its encroachment on prime agricultural land is what helped to facilitate the specific design of the community. The design response was a counter to the prevailing norm of large, single-family tract homes with discontinuous open space and

underground stormwater management. For Troy Gardens, the surrounding neighbors undertook a grass-roots level effort to protect the property and design a plan that suited the community. This process was a long effort, another similarity between the case studies. The land acquisition and planning effort, even in the Southlands case, has taken over ten years.

Inexperience leads to innovation.

Another notable comparison is that the developers for Troy Gardens and Prairie Crossing had never previously developed before. This is important because the new ideas that arose out of both Prairie Crossing and Troy Gardens in the realm of integrated agricultural and residential land uses, stormwater management, open space conservation and affordable housing were not elements that were being used in conventional subdivisions. The fact that the developers were new to this field allowed them to ask questions and try new ideas that those who had developed before would not have thought to ask or do because the traditional developments were making money and selling homes, as witnessed in the rapid spread of suburban sprawl nation-wide. The willingness to take on risk is apparent in all of the developments.

Community and municipal support is critical.

Community support was important for all of the developments in this study. All three had varying levels of community involvement, with Troy Gardens experiencing the most intense level. The neighborhood planned Troy Gardens for nearly 15 years before any actual construction occurred. In the Southlands and Prairie Crossing cases, it helped the permitting process that the developers were known locally. Even though the

processes were long, the fact that the developers were from the area and knew community members helped garner support for the projects.

The challenges that each community faced during permitting were widely different. The main challenge for Prairie Crossing was simply that this conservation development was the first of its kind in the United States. The new engineering concepts, farm and residential integration and conservation protection had to be reviewed and tested by the municipality, which took time. The main challenge for the developer of Troy Gardens was the highly fragmented planning approach. This development was also new to the city, so the constant review and re-review process took a lot of time and coordination. The main challenge so far faced by the Southlands developer is addressing the community's aversion to change. According to Hodgins, the Delta municipality, in particular, is risk-averse. Even though the planning processes for Prairie Crossing and Troy Gardens took a significantly long time to come to gain approval, the Village of Grayslake and the City of Madison both seemed more open to the new ideas that were proposed for each of the developments.

Profitability is unpredictable.

Prairie Crossing and Troy Gardens both had difficulty in attaining construction funding. For Prairie Crossing, the loan holders did not trust this new kind of development. Because it was so conceptually new, there was no proof that a return on investment would be received. The funding mechanism for Troy Gardens was quite different because it was dependent upon subsidies and grants. The application process proved to be difficult. This was made even more so by the fact that the developer did not have enough staff.

For the two built case studies, the developments' profitability differs. The homes at Prairie Crossing were sold at a higher market rate, up to 14%, over comparable developments because of the farm, charter school, views and conservation features (Leinberger 1999). Troy Gardens is a much different case. Rosenberg states that the development had less profitability because they developed it "the right way" (Rosenberg), meaning the majority of the housing was kept at affordable rates and only 5 acres of the entire property was developed into housing. MACLT only received a small percentage of the targeted developer fee. Although the development received national awards and has is often recognized as a standard for affordable housing development, the acquisition of funds and permitting nearly stymied the project.

Accessibility is critical to the sustainability of the development.

Another similarity between the developments is that the developers see them as accessible to a wide range of socio-economic backgrounds. The *type* of accessibility is different for each community. For the Prairie Crossing developer, the community is viewed as accessible because many different people use the farm and the produce that comes from the farm, even though the homes are not necessarily affordable⁷. Surrounding community residents are able to rent plots in the gardens on a yearly basis. The Prairie Farm Corporation also hosts a program for teens in nearby communities, particularly lower-income neighborhoods. During the summer the teens receive a stipend for eight weeks and learn how to harvest, cook and market food that they grow. Subsidies from the government make the program possible.

⁷ The original sales prices of the lowest priced properties started at \$180,000 (Ranney).

Troy Gardens views accessibility from a different perspective. The development is a successful mixed-income project. Success is defined in this instance by the fact that the co-housing was very well received by the neighbors and those that live in it and has remained stable in the wake of the 2008 economic recession. This model was repeated in Madison after its implementation in Troy Gardens. In this case, the developer had to make a commitment to keeping the housing affordable. Troy Gardens has a dual aspect of accessibility in the form of affordable housing and the on-site farm. The farm has experienced much success with its CSA and sale of produce to the local market. The co-housing residents as well as community residents are CSA members and are invited to work on the farm and buy at the produce stand.

The different groups that were interviewed for this report were nearly all in agreement that both Prairie Crossing and Troy Gardens could be perceived as sustainable developments. Prairie Crossing's developer, Ms. Ranney, discussed the development's sustainability mainly in terms of ecological awareness. She believes the buildings' energy efficiency, the low impact stormwater treatment measures, the farm components and the sustainability education taught at the Prairie Crossing schools contribute to the community's commitment to conservation and sustainability.

Troy Gardens' developer, Mr. Rosenberg, depicted this community's sustainability in terms of the community that it builds. He says that the community is socially and environmentally sustainable, in terms of the housing's energy efficiency and the community togetherness that is built around the community gardens. Rosenberg points out that many children were born within the three years that the first residents moved into the co-housing. For Rosenberg, having children in a community symbolizes the comfort and permanency that people feel when they are in a place that is home. Heather Stouder, planner for the City of Madison, says that Troy Gardens is also

economically sustainable because the land is under a long-term lease. It has been made sustainable by funding through major grants. Ecologically, it has preserved natural areas in an urban setting and the property's management is focused on preserving it for generations to come. Claire Strader, farm manager at Community GroundWorks discussed Troy Gardens' sustainability from the social equity side. She described it as "complicated" from the farm's perspective, because of the high cost of food to run the farm. The CSA produce must be subsidized in order to be affordable to lower-income families.

What is interesting to note was missing from the discussions on sustainability, especially from the developers, was housing affordability. Even though two-thirds of Troy Gardens' housing is affordable, Rosenberg discussed sustainability in terms of community and environment, while Prairie Crossing's sustainability was mainly considered in ecological terms. This raises questions as to if these types of developments can truly be considered sustainable if they are not completely accessible to a wide range of socio-economic backgrounds to not only partake in the agricultural aspect, but also live in the community. In the case of Troy Gardens, even when the community has successfully integrated affordable housing within the development, yet it is not mentioned when asked about the sustainability of it, does this mean that the community is only sustainable in terms of its potential marketability?

LESSONS LEARNED

So what can be lessons can be extracted from the three case studies that have been presented? The cases exhibited a variety of development scales, processes and design

elements. Many similarities exist in all three but there are many differences. It is in both the similarities and differences that lessons for the Austin region can be isolated.

Willingness and patience to bring new concepts to the table is key.

From all of the case studies, it is evident that a willingness and patience to work the municipality is essential to a successful permitting process. Developments of this type are not the norm and the concepts will need to be well explained to ensure that they will function as well, if not better than the conventional methods. One example of this is at Prairie Crossing when at the time of permitting, the standard method for stormwater management was to pipe all of the infrastructure underground. The low impact design techniques were new to the Village of Grayslake in the 1990s and to ensure the public's health, safety and welfare, the developer had to confirm that the new concepts of aboveground stormwater management would not be an issue for the residents or the Village. For those who bring new methods of development to an area, there will be aversion to change but patience is necessary in order to help the municipality realize how things can be improved. The developers of Prairie Crossing were able to demonstrate the fiscal benefit of the plan to the Village. The traditional method of development was costing the Village more money in infrastructure and services than they were bringing in through taxes. Prairie Crossing had fewer units per acre, at a higher market rate, which in turn brought in more property tax funds for the Village.

Hire those who are experts in the agricultural or local food aspect to help in planning.

It is important to initially hire people knowledgeable about agriculture and, in the case of Austin, local food advocates, who will plan how the agricultural component will

integrate with the residential piece of the development. This person or group of people would ideally manage the agricultural component. At Prairie Crossing, the developers hired a local environmental team leader who had earned his PhD in agriculture. He oversaw the operation of the farm and the natural areas. He remains with the Liberty Prairie Foundation today and was an integral part of the conceptual development and implementation of Prairie Crossing.

Each municipality will have its own characteristics that will shape how a development of this type will form. In Austin's case, there is a strong local food movement, as evidenced by the city-formed Sustainable Food Policy Board and the non-profit Sustainable Food Center. There needs to be a strong link between all processes of the food system, from growth, to processing, to distribution and waste removal. Local food advocates will play an important role in facilitating discussions about how best to implement these types of developments within the city center and on the edges of Austin. This is about fundamentally changing the current food system in a way that allows people to access fresher, healthier food in a way that can compete with stores that are open 24 hours a day, seven days a week.

According to Randy Jewart, owner of 5 Mile Farms, a local business that builds small farms in clients' residential properties, the local food community should be more transparent about how non-impactful they really are. He estimates that 15,000 people currently regularly attend farmer's markets. In a city of more than 1.5 million people, that is approximately .01 percent of the population that is buying locally produced food. Jewart and his staff currently produce food on 16 yards in the Austin area. Though this is admittedly highly inefficient, his goal lies more in increasing the distribution points of locally produced food, and in doing this, increasing the community benefits that are inherent in community farming.

The size of the farm matters: smaller is more efficient.

Another lesson to be pulled from the case studies is on the size of the farm. The size of the farm does matter and smaller farming is the key to success. In the case of Prairie Crossing, there are a total of five farms on site. Ranney states that the largest farm run by Sandhill Organics, could have actually been smaller and still functioned as it does today. Because the farm does not produce food to make a profit for the development, less land needs to be dedicated to it. The farm serves to attract people to the development, and for the residents, functions as an amenity that they may or may not choose to take part in.

In Jewart's experience, people have positive reactions to community gardens and farms. But what is interesting is that these same people may not necessarily want to work with the land or even eat what is produced. The important thing is the connection to the land and gaining satisfaction in knowing that the land is being used productively. The 5 Mile Farms clients typically do not even work in their backyard farm themselves. Jewart's staff takes care of the production.

The farm itself should be protected.

It is important that for development to be protected through conservation easements or other methods. Prairie Crossing protected the farmland by deeding it to the Liberty Prairie Foundation in perpetuity. This protects the farms from fluctuating residents and ideas about how funding should be spent. The Troy Gardens property is protected in a different way. It is owned by MACLT and leased back to Community GroundWorks for \$1 per month. Community GroundWorks may eventually buy the land

from MACLT. A separate LLC has a 98-year lease on the housing component, which the housing association leases from MACLT.

Develop based on what is needed and not necessarily the housing trend.

Southlands and Troy Gardens both developed based on the housing need and not the housing trend. The Southlands developer plans to build housing for the aging population, and those that are looking to downsize their residence. The plan that was done previously had 1,900 single family homes that would have added to the larger single family sprawling lot housing stock that exists in the area. The neighbors surrounding Troy Gardens expressed and planned for a need of affordable housing. Though this was new for the City of Madison, the co-housing model has been successful and since repeated elsewhere in the city.

Austin, and most of Texas, has weathered the 2008 recession relatively well. The city is currently experiencing tremendous economic growth and ranks number one among the nation's 50 largest metro areas in job growth over the past eight years (Ladendorf 2012). 4,096 new jobs are projected which is expected to bring an estimated \$1.2 billion in new economic activity. Housing needs will follow the expected population growth. Because Austin is poised on the edge of this tremendous amount of growth, the city has a great opportunity to grow in a more sustainable manner. The Imagine Austin Comprehensive Plan that was just recently approved by City Council poises future growth on the eastern edge of the city. Though this protects Austin's precious resources on the west side, developments on the east will occur on existing farmland. These types of developments could be a way to conserve existing farmland while creating areas for people to live. Agricultural-based developments can be seen as a way to conserve scarce

resources, including farmland, and better manage water resources. They can also aid in improving the local food system, by increasing the distribution points for locally produced food and reducing vehicle miles traveled to obtain food for those living in the development. This needs further research but could prove a more sustainable model than traditional development.

Look for allies in unconventional partners.

Another aspect that has helped Troy Gardens and Prairie Crossing achieve success is allies in unconventional partners. These could be private-public partnerships, community land trusts, and local educational institutions. All three case studies benefitted from the help of schools that were near the developments. Troy Gardens was made possible by the collaboration between a community land trust (MACLT) and a conservation land trust (Caton Campbell and Salus 2010). They worked to preserve the majority of the property from impending development.

The developers of Prairie Crossing and Troy Gardens both believe that community-based agricultural developments will be easier to plan and implement now than they were in the 1990s. This is because there are now several examples of communities that have gone through the process and have been in existence for at least ten years. Today's awareness of climate change and sustainable growth is also an environment that is looking towards new methods of housing people in a more sustainable way.

Conclusion

In sum, this research is important because it is imperative to find a more sustainable approach to building housing for cities' growing populations. Master planned communities have typically been built on valuable farmland, available only to those who have the means to drive long distances, and far outside the boundaries of cities, making it costly for municipalities to provide services. Agriculturally-centered neighborhoods are a noteworthy model because they dovetail community, local food production and residents' connections with nature.

Urban agricultural communities have the opportunity to effect change in cities such as Austin that are experiencing incredible population growth. Ecological benefits are possible through the use of low impact design techniques, reduced vehicle miles traveled and conservation of open space and farmland. Social benefits arise from the shared experience of community-based agriculture. These kinds of developments have also proven to be economically beneficial for the governing municipality in the form of reduced cost of infrastructure.

Prairie Crossing found success as the first conservation development in the United States. 60% of the 668 acres have been preserved as open space. The development was a pioneer in using open stormwater management techniques, native plantings and agricultural involvement. Many of the development's achievements can be attributed to the foresight that the developer had during the planning stages. The Liberty Prairie Foundation protects the farm in perpetuity and an unusual partnership with the nearby landfill turned what could have been a significant negative into something positive for the community.

Troy Gardens is a successful example of the power of neighborhood planning and a community land trust that worked for affordable housing in an infill environment. Through years of hard work, the City and MACLT preserved 31 acres in the heart of the city for open space, agricultural production and mixed-income housing. This development also proves to have an effective working relationship between the farm and housing components and has proved itself an example of a successful community land trust partnership in its efforts to work with the surrounding community and the City of Madison.

Southlands, if successfully approved, will be a positive change for what could have become single-family sprawl. Preservation of viable farmland in an area that has a rich tradition of agricultural production is an essential aspect of this development. Southlands also attempts to bring agriculture at multiple scales into a singular development..



Figure 2: 5 Mile Farms in Austin, Texas. *Source: Author.*

Success in Austin for agriculture-based communities will need to take into account the city's attitude on local food production, booming population and economic growth and the political framework. Additionally, this area has access to resources like the University of Texas and Texas A&M, as well as strong local food advocates such as the Sustainable Food Center, that could be strong allies in research and implementation.

Research should be furthered on the positive and negative environmental impacts of community-based agriculture, including if the developments effectively reduce vehicle miles traveled by decreasing the travel distance for residents to access food or farmers delivering produce to processing facilities. Research is also needed to assess the reality of low impact design techniques on water quality in these communities. It would be beneficial to do a more detailed comparison of agricultural-based developments with traditional developments in order to supplement the research that these kinds of

developments are more sustainable but equally as profitable. A third topic for further research is the impact of local food production on a city's economy, including Jewart's concept of "hyper-local" distribution and production. Lastly, further research should be done on the types of agricultural production would best suit the Austin area.

What was learned from the research done on Prairie Crossing, Troy Gardens and Southlands is that agricultural -based developments have made a step towards becoming a more sustainable type of development. They are arguably more environmentally sustainable, especially when compared with traditional methods of housing development. But agricultural based developments should continue to break ground on housing, environmental and agricultural innovations in order to become truly sustainable in an economic, equitable and ecological sense of the word. This type of development will not be appropriate for every area, but is worth investigating further for growing cities faced with the need to house incoming residents.

Appendices

APPENDIX A

Prairie Crossing Site Plan



Figure 3: Site Plan of Prairie Crossing.

Source: <http://www.prairiecrossing.com/pc/site/site-plan.html>

Troy Gardens Site Plan



Figure 4: Site Plan of Troy Gardens.

Source: http://troygardens.net/documents/maps_assets/TG-PUD-site-map-nov-2005.pdf

APPENDIX C

Southlands Site Plan

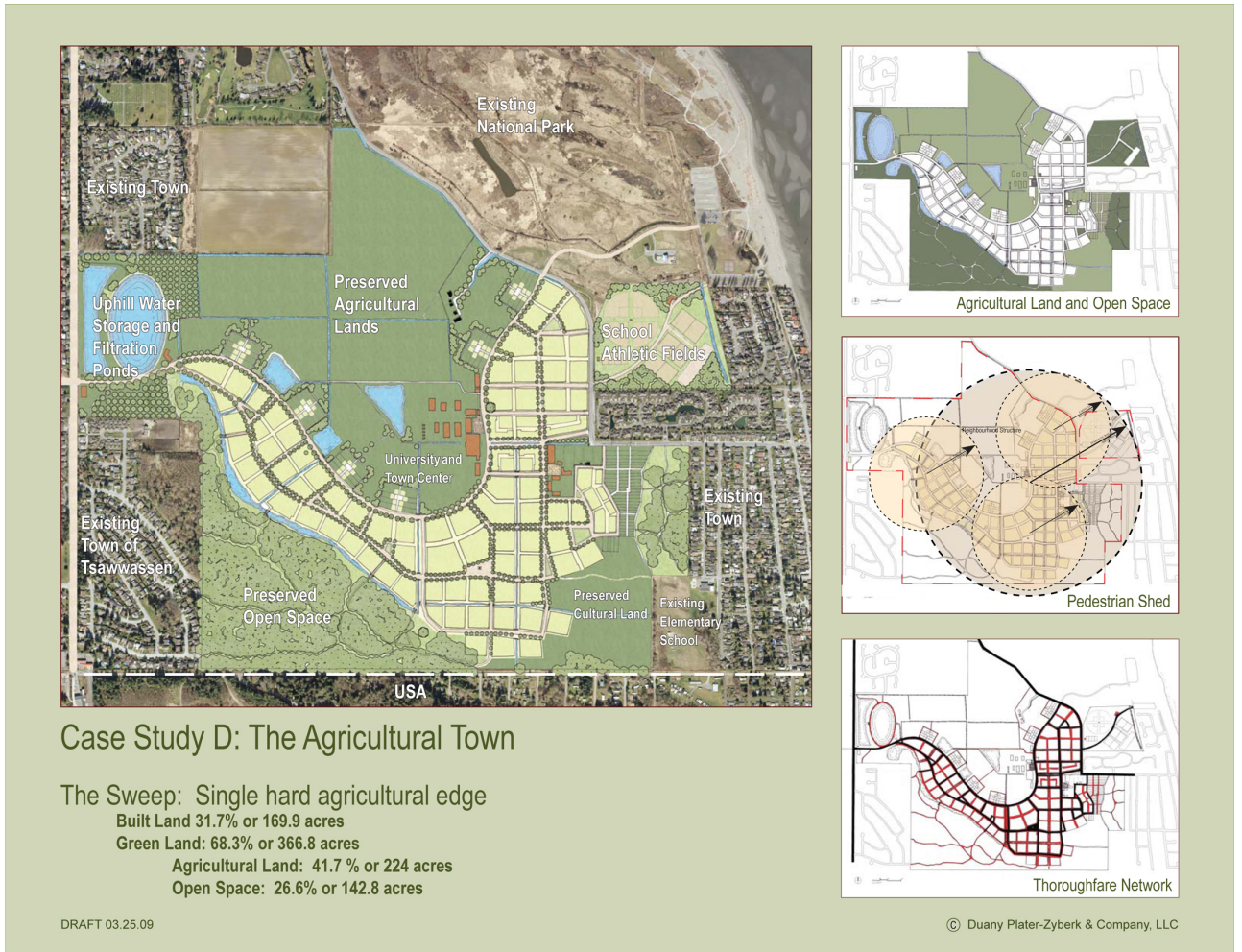


Figure 5: Site Plan of Southlands.
Source: *Agricultural Urbanism DRAFT*, Duany Plater-Zyberk & Company, LLC

APPENDIX D

Interview Questions Grouped By Type

Developers

1. How did you get involved in this kind of development?
2. What are the conditions that facilitate design implementation?
3. What are the conditions that facilitate approval of these communities from the city? Public support?
4. What were challenges?
5. Were there any issues during the development/permitting process?
6. How were the challenges resolved?
7. Strategies for land acquisition?
8. What are the financing mechanisms that support the operation of the farm?
9. How is land ownership of the cooperatively part of the development handled?
10. Funding strategies?
11. How difficult was it to get financial support for the development?
12. Is it a unique investment strategy?
13. As an entire process, what would you do differently? And why? What would you do the same?
14. Could a development like this be done in an infill type of environment?
15. Has this development profited as much as a traditional development that you have done?
16. Does the land need to be legally protected?
17. In relation to the agriculture, does the size of productive ag land influence the feasibility of the project?

18. Are developments like this accessible to people from a wide range of socio-economic backgrounds?
19. Was housing affordability part of the development goals? What kinds of people were you marketing the development to?
20. Has there been any impact from the economic recession on the occupancy rates and appreciation of property in the development?
21. Do you consider this kind of development to be sustainable? If so, please describe to me how this kind of development reflects ideas about sustainability.

Farmers

1. Describe how the farm operates on a daily basis? How are farm operations managed and is there any long range planning (food production, budget)
2. What is the profit margin for the farm? When did the farm start turning a profit?
How many people are employed on the farm and what do they do?
3. What is the business model of the farm?
4. How much food is produced on the farm annually? What kinds of produce are grown? Who buys the produce? What is done with food that is not used by residents?
5. Are there any plans for expanding the current acreage under food production?
How much land is needed for a farm to work?
6. How long did it take for the Liberty Prairie Foundation to become fully functional?
7. What has contributed to the success of the farm? What remain challenges for the farm?

8. Background information: have you always farmed? Is this farming experience different from others that you have had? If so, please explain how. What kinds of interactions do you have (or the farm has) with the community residents? With other people outside the community? How would you describe the relationship between the farm and the community?
9. What does a working farm contribute to this kind of development? How is the farm within this kind of development different from a traditional farm?

These kinds of developments are talked about as being sustainable. How do you think this development is sustainable? How is it not sustainable (or, you could ask: where can the development improve in being sustainable?)
10. Has working on this farm influenced your ideas about what sustainability is?

City Officials

1. What were the conditions and regulations that contributed to the approval of the development?
2. What were the specific points of negotiation between the city and the developer/design team?
3. Was there anything about this development that was completely new to the city, such as taxing community-owned property or zoning/land use or LID techniques?
4. Were there any characteristics about the developed land that hindered or aided the development process and the specific design?
5. Are there any noticeable effects regionally or locally of this development? i.e. agricultural production, trends around reduction in water or energy usage?

6. Were there any new or innovative solutions that occurred during the development process that the city then incorporated into zoning or coding regulations?
7. How can issues of housing affordability be incorporated into the framework of this type of development?
8. How do you think this development is sustainable or not sustainable?
9. How does the governing area define sustainability?
10. Would the city like to see more of these types of developments, and if so, why?

Interview Questions for Southlands Case Study

1. Process

- a. How has the process been, especially considering Delta officials have most likely never seen a development like this before?
- b. Opportunities that were leveraged in getting this moving?
- c. Investment strategy?
- d. Where did this idea come from?
- e. How was Duany chosen as the initial planner?
- f. What were the three biggest challenges?
- g. Who were the key allies in working on this?
- h. What communities did they look to for inspiration?

2. Market Analysis

- a. What is the agriculture market like in Tssawassen?
- b. What will houses be sold for?
- c. Was a market analysis done?
- d. What markets were considered?

3. What kinds of analyses were done?
 - a. Economic?
 - b. Transit?
 - c. Landscape ecological metrics?
4. Farming
 - a. What kinds of involvement and to what level of involvement with people in the agricultural community?
 - b. USDA (Canadian equivalent)
 - c. Local farmers (Earthwise Society?)
 - d. What kind of farming will be done?
 - e. What kind of permitting for the agricultural land was needed?
 - f. How does the community-owned farm principle work?
 - g. How will the properties be tied to the land, ownership-wise?
5. Natural Habitat Areas
 - a. What is the goal for these areas?
 - b. Are there any existing federal regulations that were triggered around species habitat protection?
 - c. Environmental impact statement?
 - d. What does the edge consist of between the natural habitat area and the farmland?
6. Looking to the future
 - a. What are the biggest lessons learned from this project?
 - b. In what ways do you think this project may be a success?
 - c. In what ways do you think it could have been improved?

- d. Are there any policies that would have supported this project in a more efficient manner?
- e. What might be some future threats to the continued ability of the development to function? i.e. legal issues, citizen issues

Interview Questions for Those Potentially Involved in Texas Community-based Agriculture: City

1. What has been your experience with planned developments that incorporate agriculture?
2. In what ways might a development like this be successful in the Austin area?
3. What kinds of agriculture for these agricultural developments make sense both economically and culturally in the Texas context?
4. What do you see as the biggest challenge for the city with these kinds of developments? Design, implementation, market interest, policy, conflict of interests and land uses?
5. Who do you think would be the key players in the design and implementation of a development of this type in the Austin area?
6. Do you think there is a market for this kind of development in Texas, given our current economic and environmental concerns?
7. Is there discussion of agricultural development as a response to food supply and demand concerns as well as sprawl? In development community? In sustainable foods community? If so, what is being said?
8. Are there any examples that you know of that inform your decisions on agricultural developments? If so, what are the lessons learned from precedent studies that make sense to the Texas context?

9. How do you see developments either as adaptation or mitigation strategies for climate change?

Interview Questions for Those Potentially Involved in Texas Community-based Agriculture: Local Food Advocates

1. What has been your experience with planned developments that incorporate agriculture?
2. In what ways might a development like this be successful in the Austin area?
3. What kinds of agriculture for these agricultural developments make sense both economically and culturally in the Texas context?
4. What do you see as the biggest challenge for the city with these kinds of developments? Design, implementation, market interest, policy, conflict of interests and land uses?
5. Who do you think would be the key players in the design and implementation of a development of this type in the Austin area?
6. Do you think there is a market for this kind of development in Texas, given our current economic and environmental concerns?
7. Is there discussion of agricultural development as a response to food supply and demand concerns as well as sprawl? In development community? In sustainable foods community? If so, what is being said?
8. Are there any examples that you know of that inform your decisions on agricultural developments? If so, what are the lessons learned from precedent studies that make sense to the Texas context?

9. How do you see developments either as adaptation or mitigation strategies for climate change?
10. What ideas do you have about linking on-site production on these developments to systems of processing and distribution?

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Vita

Claire Elise Witter graduated from Louisiana State University with a Bachelor of Landscape Architecture in 2002. She worked for private landscape architecture firms in Houston and Dallas for eight years, participating in a wide variety of project types, including community planning and design, Middle Eastern resorts and public parks. While in graduate school, she worked with the Texas General Land Office in the Coastal GIS department and with Design Workshop, working on livable centers plans for neighborhoods in Houston and a stormwater management plan for New Braunfels, Texas. Currently, she is expecting to complete her master's degree in Community and Regional Planning at the University of Texas in the spring of 2012 and will work as a landscape architect and planner at Design Workshop's Austin office upon graduation

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